

ical, fauna of the canton of Valais, comprising the upper valley of the Rhone will be found in Prof. Ed. Bugnion's Introduction to Favre's Faune des coléoptères du Valais, now publishing in quarto form in the memoirs of the Swiss society of natural sciences (vol. 31). Mr. Bugnion divides the district into three regions or zones, the lower, the subalpine or forest, and the alpine, their highest levels respectively at 800, 2,000, and 2,700 metres; the subalpine he further subdivides into a lower forest, whose upper limit reaches 1,350 metres, and an upper forest region, the latter characterized by the prevalence of conifers and rhododendrons. These divisions, as he points out in a note, differ from those of preceding authors, though not very greatly from the latest authority. Heer in 1837, writing for the whole of Switzerland, made out seven zones, each 450 metres in height after the field (campestre) which terminated at 300 metres; the succeeding were the hill or colline with an upper limit at 750, the mountain (1,200), subalpine (1,650), alpine (2,100), subnivale (2,550), and nivale (3,000). Rion in 1852 made four divisions as follows:—

1. Zone of cultivation, 375–1,263 m.
2. “ “ conifers, 1,263–2,050 m.
3. “ “ alpine pasturage, 2,050–2,760 m.
4. “ “ eternal snow, 2,769 m. upward.

Christ in 1883 also made four divisions:—

1. Lower zone up to 550 m. (700 in south Switzerland).

2. Zone of deciduous trees, 550 (or 700)–1,350 metres.

3. Zone of conifers, 1,350–2,100 m. (2,300 in central Alps).

4. Alpine zone, 2,100 (or 2,300)–3,000 m. (perpetual snow).

Professor Bugnion gives a large number of groups of specific forms, mostly Coleoptera, inhabiting two districts, or living under different conditions, etc., in illustration of their geographical distribution, and after discussing at some length the geological antiquity of insects endeavors to show from what sources the different elements of the entomo-

logical fauna of Valais were directly derived.

THE ABBÉ PROVANCHER has completed the third volume of the Faune entomologique du Canada which has been appearing from time to time as a supplement to his journal, *Le naturaliste Canadien*. It is entirely devoted to the Hemiptera, and makes a volume of 354 pages and five plates. A large number of new species are described, principally from the Province of Quebec; systematic tables of the groups lead to an easy determination of the species. It can be obtained of the author at Cap Rouge.

The volume on the Hemiptera was to be followed by a serial work on the Canadian Lepidoptera in the same journal by the abbé Provancher; but the editor has been obliged to forego his intentions as his journal is no longer to receive a subvention from the Quebec government without which its publication is impossible, and it will accordingly cease with the end of the present volume in June.

PROCEEDINGS OF SOCIETIES.

CAMBRIDGE ENTOMOLOGICAL CLUB.

14 December, 1888.—The 141st meeting of the Club was held at 156 Brattle St. Dr. G. Dimmock was chosen chairman.

Mr. Andrew G. Weeks was elected to active membership.

Dr. H. A. Hagen remarked on swellings along the midrib of the leaves of the young shoots of white oaks found by him which contained hymenopterous larvae.

Mr. S. H. Scudder showed caterpillars collected this year, among them the adult and immature larvae of *Terias lisa*.

Mr. Scudder, in reply to a question in regard to *Anthocaris genutia*, said that it was only found in New England along a line of trap-rock in the Connecticut valley.

Mr. Scudder then showed plates of eggs, larvae, and pupae of butterflies, from his work on New England Butterflies now in press, and remarked somewhat at length on certain species.

Mr. H. Hinkley showed specimens of *Lagoa crispata* which he had raised. It is interesting in that in hatching, it pushes the pupa skin from the chrysalis. The legs, antennae, etc., have separate coverings. There is also a sort of double lid to the cocoon.

11 January, 1889. The 142d meeting of the Club was held at 156 Brattle St. Mr. S. H. Scudder was chosen chairman.

The annual reports of the secretary and librarian were read and accepted. The annual report of the treasurer was read and accepted subject to the approval of the auditors.

The club then proceeded to ballot for officers for the ensuing year. The following were chosen: President: S. H. Scudder. Secretary: R. Hayward. Treasurer: S. Henshaw. Librarian: G. Dimmock. Members at large of Executive Committee: G. Dimmock, and H. Hinkley. Editors of *Psyche*: G. Dimmock and S. Henshaw.

The annual address of the retiring president, Prof. Wm. Trelease, was on Myrmecophilism (See *Psyche* v. 5, p. 171-180).

Remarks were made by Mr. Albert E. Smith on a leaf-cutting ant which is very injurious to the coffee plant in South America. These ants cut off the leaves and carry them away; they are supposed to use them to cover up their subterranean passages.

Mr. S. H. Scudder showed some of the late Dr. Asa Fitch's manuscripts and read a note of his in which he recorded as early as 1855 the occurrence of *Fenisecca tarquinus* with plant lice.

Mr. Scudder next called the attention of the Club to the remarkable mode of suspension in the chrysalis of the genus *Thais*, exhibiting specimens of the chrysalis of *T. rumina*. In all the three species of this genus found in Europe the anterior extremity of the chrysalis is furnished with a double tubercle, bristling with short curving hooks, and the chrysalis, besides being attached in the normal way of the Papilionidae by the hinder extremity and the girth around the middle, has also an additional support by the entanglement of these anterior hooks in a loop of silk spun by

the caterpillar in preparing for pupation, and which seems to spring from about the same points as the transverse loop of the thorax. There seems to be very little reference to this peculiar mode of transformation by those who have treated of this genus, although it was distinctly mentioned by Rambur as long ago as 1840 in his *Faune entomologique d'Andalusie*; Boisduval, Rambur, and Grasilin in their work on European caterpillars describe and figure two species and Duponchel gives an independent description and figure of one of them,—all without reference to this peculiar mode of suspension, or to the unique structure of the anterior extremity, to which there seems to be no parallel in the Lepidoptera. Rambur in the work referred to says (p. 243): "The anterior extremity which is pointed and bifid is also furnished with little short hooks which hook themselves in two bundles of thick silk; it is thus supported by the two extremities besides the slight band of silk which embraces it." Yet Doubleday in 1846 says that "according to Dr. Rambur, when about to undergo their metamorphosis, they not only fasten themselves by a transverse thread like the *Parnassii*, but also surround themselves by a very slight silken web," which Rambur nowhere asserts and which is an entire mistake.

He then showed some living pupae of *Pieris napae* and called attention to the differences between them and those of *P. oleracea*. The frontal spine is straight in *P. napae*, short and hooked upward in *P. oleracea*. The pupae of *P. napae* are also more heavily marked. The larvae differ in the amount of pile and in the prominence of the larger wartlets. He stated that the specimens of *P. oleracea* from the temperate regions of America and of *P. napae* from those of Europe are easily distinguishable in their earlier stages and also by the abdominal appendages of the male imago.

Mr. A. E. Smith showed a part of his collection of Orthoptera from Brazil, and remarked at some length on his collecting in South America